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**(54) SEMICONDUCTOR SUBSTRATE WITH EPITAXIAL CRYSTAL**

**(57) Abstract:**

**PURPOSE:** To prevent a twin crystal generation by a method wherein a compound semiconductor crystal is epitaxially-grown on the (331) face of the (112) face on a semiconductor substrate with the (115) face on both surfaces.

**CONSTITUTION:** On a substrate pedestal 13 provided with a heating heater 14 within a vessel 11 of a molecular ray epitaxial growing device, a Si substrate 12 having a (115) crystal surface is arranged, and the substrate 12 is heated in a high vacuum of  $10^{-8}$  to  $10^{-10}$  Torr at a temperature 850 to 1000°C for 10min. to clean the surface thereof. Next, the substrate 12 is held at 600°C to open a shutter 21 arranged on a Te melting pot 15 to irradiate it with Te molecular rays for 3 min. Next, the substrate 12 is held at 320°C or 230°C to open the shutter 21 to emit CdTe molecular rays, so that an epitaxial crystal of CdTe can grow up to a desired thickness. Thus, a CdTe crystal 17-1 of a (331) face or a CdTe crystal 17-2 of a (112) face can be formed without causing crystal defects such as a twin

crystal etc., on the Si substrate 12 of a (115) face.

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